WHAT IS CLAIMED IS:

1. A detection assembly for capacitively detecting an object on a support structure, comprising:

at least one electrode being arranged adjacent said support structure;

at least one cable having a first conductor and a second conductor, said first conductor having a first end connected to said at least one electrode and a second end being connected to a first AC source;

a controller structured to control said first AC source to provide a predetermined first AC voltage with a first amplitude and a first phase via said first conductor to said at least one electrode for capacitively detecting said object; and

a second AC source connected to said second conductor wherein said controller is structured to control said second AC source to provide a predetermined second AC voltage to said second conductor, said second AC voltage having a second amplitude and a second phase, respectively, which are substantially equal to said first amplitude and said first phase, respectively.

2. A detection assembly according to claim 1, wherein

said first conductor is connected to a DC source that is in series with said first AC source to provide a predetermined DC voltage to said at least one electrode to provide a clamping force on said object.

3. A detection assembly according to claim 1, wherein

said object is one of a wafer and a reticle.

4. A detection assembly according to claim 1, wherein

said first conductor is at least partially enclosed by said second conductor.

5. A detection assembly according to claim 4, wherein

said second conductor is at least partially enclosed by a third, grounded conductor.

6. A detection assembly according to claim 1, wherein

said second AC voltage is obtained from the first AC voltage with the use of an amplifier circuit with an amplification of unity.

7. A lithographic apparatus, comprising:

an illumination system constructed to provide a beam of radiation; and

a detection assembly for capacitively detecting an object on a support structure, said detection assembly including:

at least one electrode being arranged adjacent said support structure;

at least one cable having a first conductor and a second conductor, said first conductor having a first end connected to said at least one electrode and a second end connected to a first AC source;

a controller structured to control said first AC source to provide a predetermined first AC voltage with a first amplitude and a first phase via said first conductor to said at least one electrode for capacitively detecting said object; and

a second AC source connected to said second conductor and said controller structured to control said second AC source to provide a predetermined second AC voltage to said second conductor, said second AC voltage having a second amplitude and a second phase, respectively, which are substantially equal to said first amplitude and said first phase, respectively.

8. A lithographic apparatus according to claim 7, further comprising:

an actuator constructed to move said support structure, said actuator being connected to said controller, said controller being structured to control said actuator to move said support structure when a clamping force is above a predetermined value.

9. A lithographic apparatus according to claim 7, further comprising:

an actuator constructed to move said support structure, said actuator being connected to said controller, said controller being structured to determine a clamping force on said object and to provide said actuator with a maximum value for the acceleration on said object.

10. A method for capacitively detecting an object on a support structure comprising:

controlling a DC source to provide a predetermined DC voltage to at least one electrode to provide a clamping force on an object;

controlling an AC source to provide a predetermined first AC voltage with a first amplitude and a first phase via a first conductor to the at least one electrode for capacitively detecting the object; and

controlling a second AC source to provide a predetermined second AC voltage to a second conductor, the second AC voltage having a second amplitude and a second phase, respectively, which are substantially equal to the first amplitude and first phase, respectively.

11. A method according to claim 10, further comprising:

determining at least one of a first capacitance of the support structure with the object present on the support structure and a second capacitance of the support structure without the object present on the support structure; and

storing at least one of the determined first capacitance and the determined second capacitance in a memory.

12. A method according to claim 10, further comprising:

determining the clamping force of the support structure on the object by determining the difference in capacitance between the support structure with the object present on the support structure and the support structure without the object present on the support structure;

comparing the clamping force to a predetermined minimum clamping force suitable to hold the object on the support structure during the movement; and

moving the support structure and the object together when the determined clamping force is more than or equal to the minimum clamping force unless the determined clamping force is less than the minimum clamping force.

13. A method according to claim 10, further comprising:

determining the clamping force of the support structure on the object by determining the difference in capacitance between the support structure with the object present on the support structure and the support structure without the object present on the support structure,

deriving from the clamping force a maximum acceleration of the support structure and the object during a movement which causes movement of the support structure relative to the object, and

moving the support structure and the object when an acceleration of the support structure and the object is less than the maximum acceleration.

14. A computer program product for use in detecting an object on a support structure, said computer program product comprising:

means for controlling a DC source to provide a predetermined DC voltage to at least one electrode to provide a clamping force on an object;

means for controlling an AC source to provide a predetermined first AC voltage with a first amplitude and a first phase via a first conductor to the at least one electrode for capacitively detecting the object; and

means for controlling a second AC source to provide a predetermined second AC voltage to a second conductor, the second AC voltage having a second amplitude and a second phase, respectively, which are substantially equal to the first amplitude and first phase, respectively.

15. A computer-readable medium encoded with a program, said program comprising:

controlling a DC source to provide a predetermined DC voltage to at least one electrode to provide a clamping force on an object;

controlling an AC source to provide a predetermined first AC voltage with a first amplitude and a first phase via a first conductor to the at least one electrode for capacitively detecting the object; and

controlling a second AC source to provide a predetermined second AC voltage to a second conductor, the second AC voltage having a second amplitude and a second phase, respectively, which are substantially equal to the first amplitude and first phase, respectively.

16. A detection assembly, comprising:

an object;

a support structure;

means for capacitively detecting said object on said support structure.

17. A method for capacitively detecting an object on a support structure comprising:

providing a predetermined DC voltage to at least one electrode to provide a clamping force on an object;

providing a predetermined first AC voltage with a first amplitude and a first phase via a first conductor to the at least one electrode for capacitively detecting the object; and

providing a predetermined second AC voltage to a second conductor, the second AC voltage having a second amplitude and a second phase, respectively, which are substantially equal to the first amplitude and first phase, respectively.